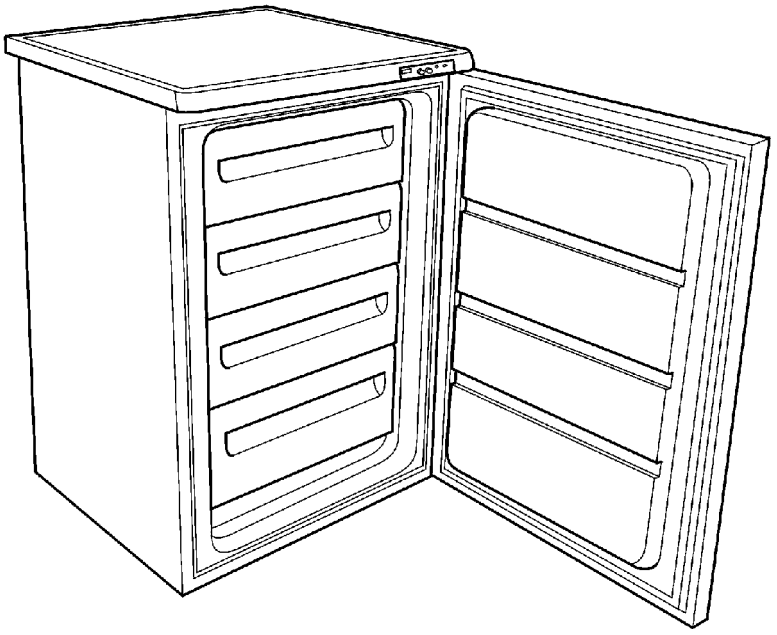
Electrolux DISTRIPARTS

SERVICE MANUAL

REFRIGERATION



NOFROST UNDERCOUNTER FREEZERS

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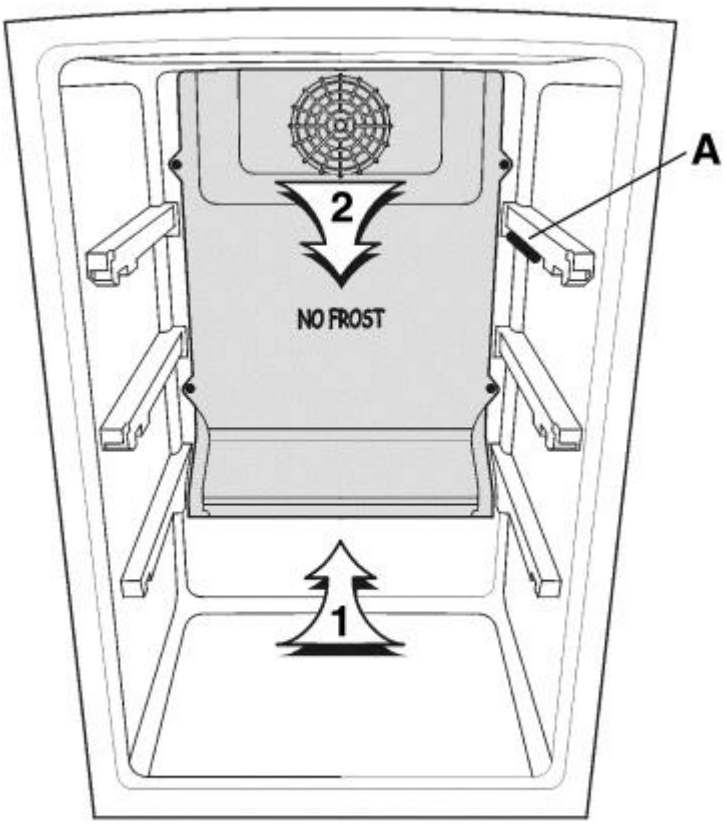
1. INTRODUCTION

This manual describes the NOFROST UNDERCOUNTER FREEZERS models.

The basic model is a 80 litre freezer produced in two versions with:
- electromechanic control
- electronic control

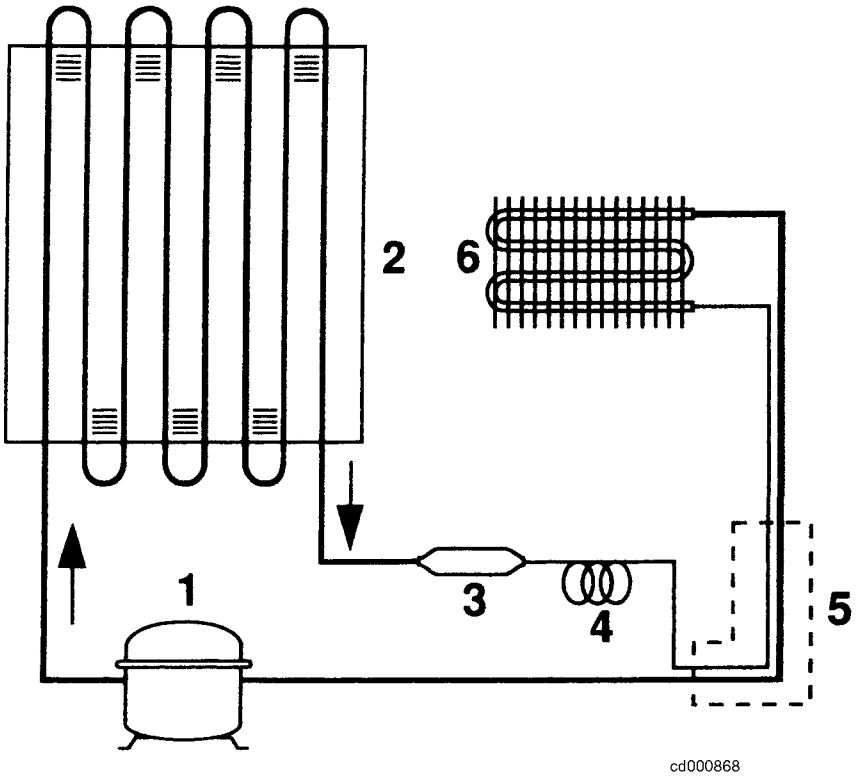
NOFROST UNDERCOUNTERS consists of a single freezer compartment.

The cold, produced by the evaporator battery in the freezer compartment, is then distributed by the fan located over the battery.



FREEZER COMPARTMENT
The fan makes the cold air circulate in the compartment: it enters by nozzle 1 and comes out of nozzle 2 passing through the evaporator battery. The thermostat bulb (for the electromechanic version) or the sensor (for the electronic version) are located inside (pos. **A**) and detect the air temperature in the compartment.

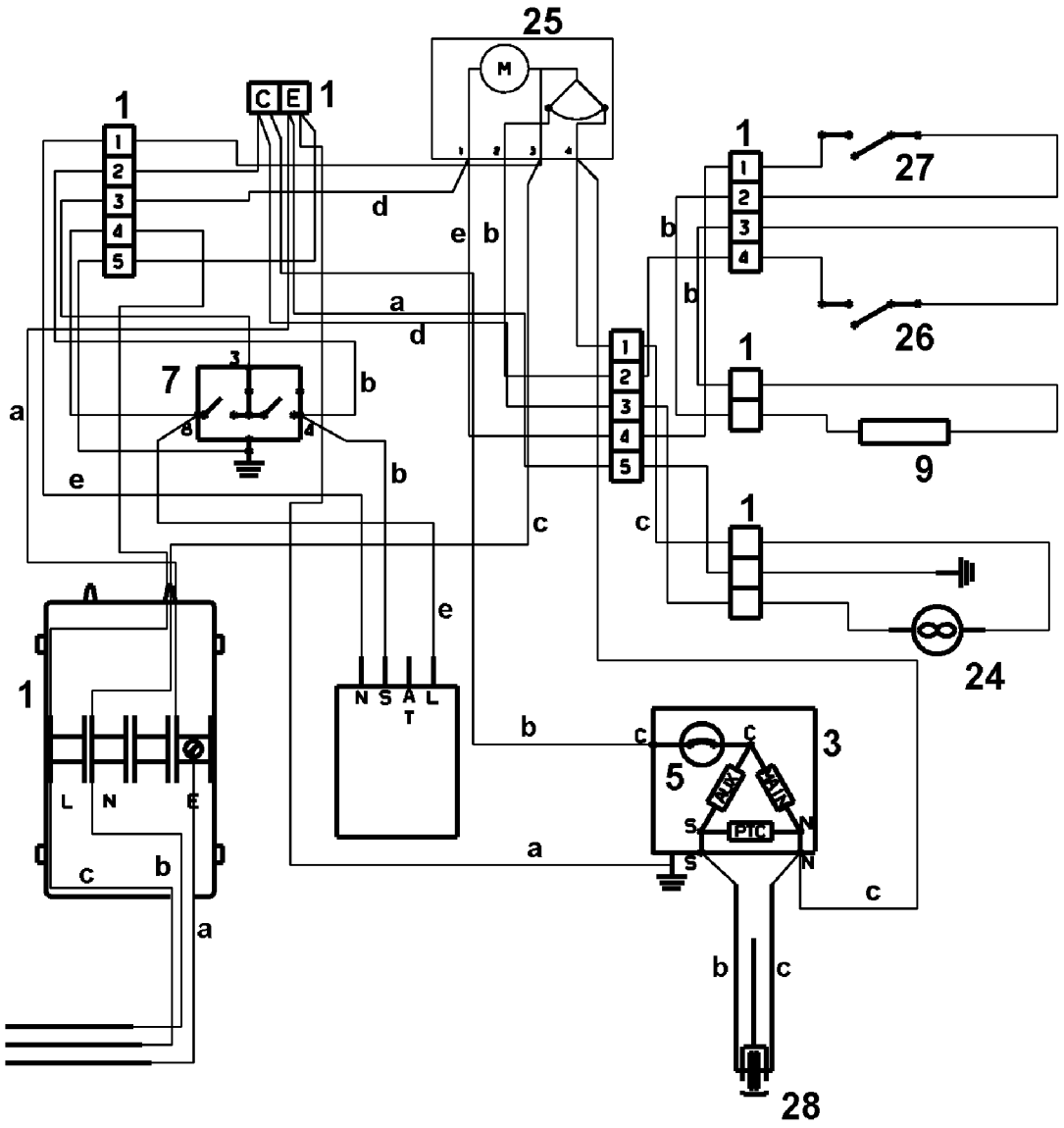
2. REFRIGERATION CIRCUIT



Legend :

1. compressor
1. condensator
2. filter
3. capillary
4. heat exchanger
5. battery evaporator

3. ELECTRIC WIRING
3.1 electromechanic version
(check the specific diagram for each model !)

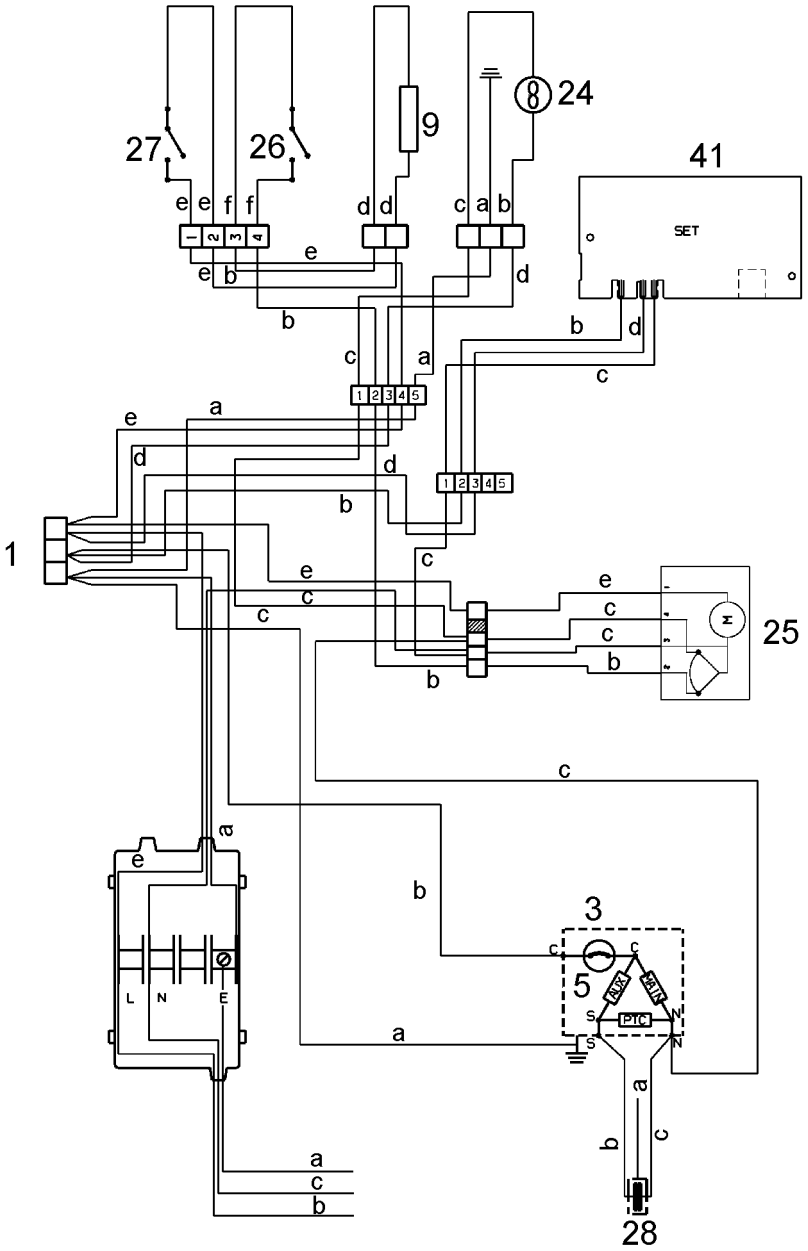


Legend :

1. junction box
3. frezeer compressor junction box
5. overload cut-out
7. freezer thermostat
9. defrosting heater
24. battery fan
25. timer
26. safety thermal switch (+ 40 °C)
27. defrosting cut-out switch (+ 10 °C)
28. running capacitor

a. yellow-green
b. brown
c. blue
d. white
e. black

3.2 electronic version
(check the specific diagram for each model !)

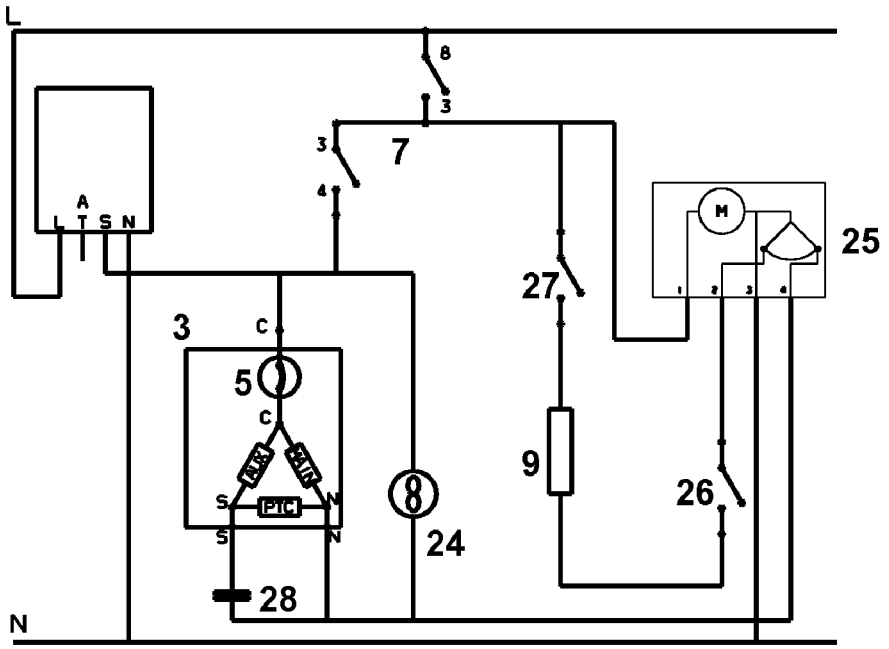


Legend :

1. junction box
3. freezer compressor junction box
5. overload cut-out
9. defrosting heater
24. battery fan
25. timer
26. safety thermal switch (+ 40 °C)
27. defrosting cut-out switch (+ 10 °C)
28. running capacitor
41. electronic board

a. yellow-green
b. brown
c. blue
d. white
e. black
f. grey

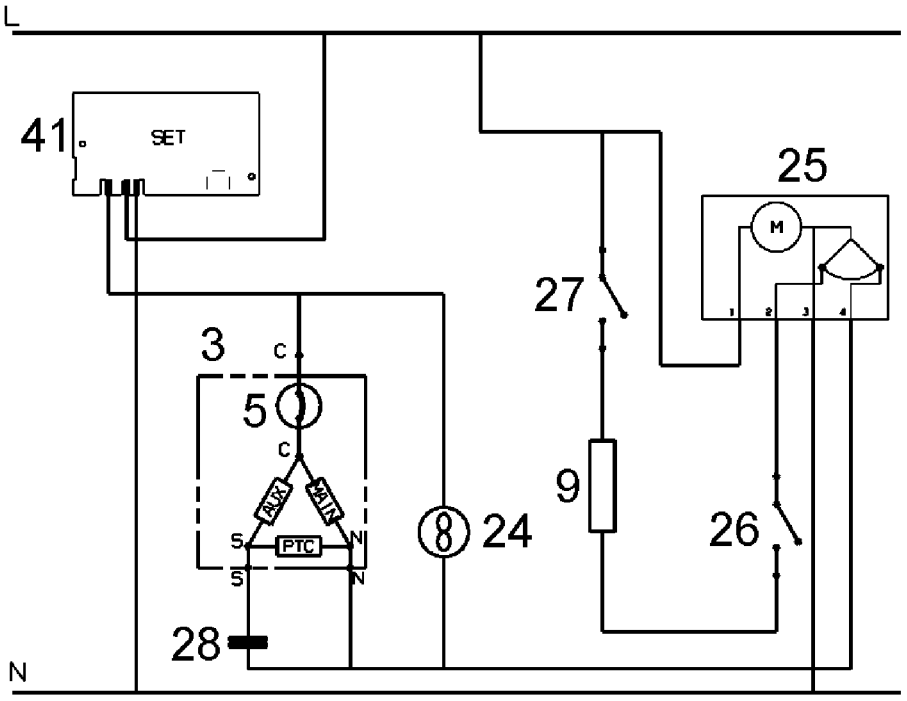
4. FUNCTIONAL DIAGRAM
4.1 electromechanic version
(check the specific diagram for each model !)



Legend :

1. junction box
3. freezer compressor junction box
5. overload cut-out
7. freezer thermostat
9. defrosting heater
24. battery evaporator
25. timer
26. safety thermal switch (+ 40 °C)
27. defrosting cut-out switch (+ 10 °C)
28. running capacitor

4.2 electronic version
(check the specific diagram for each model !)



Legend :

1. junction box
3. freezer compressor junction box
5. overload cut-out
9. defrosting heater
24. battery fan
25. timer
26. safety thermal switch (+ 40 °C)
27. defrosting cut-out switch (+ 10 °C)
28. running capacitor
41. electronic board

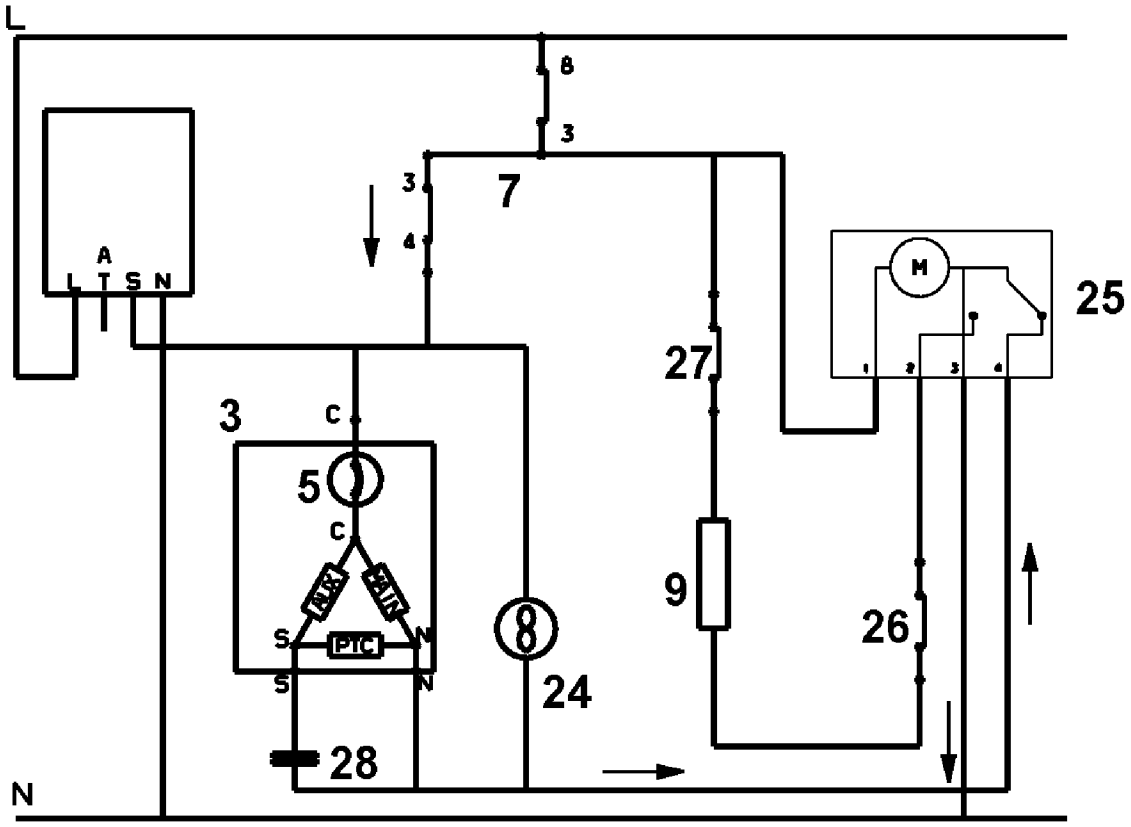
5. OPERATION

5.1 NORMAL

In NOFROST refrigerators, thanks to the air circulation, the humidity inside the freezer compartment accumulates on the evaporator battery, thus avoiding the formation of frost on food.

During the normal operation time the timer cam closes **3-4** contacts thus powering the compressor and fan circuit. The operation time lasts about 18.5 hours.

The arrows in the picture show the current path.



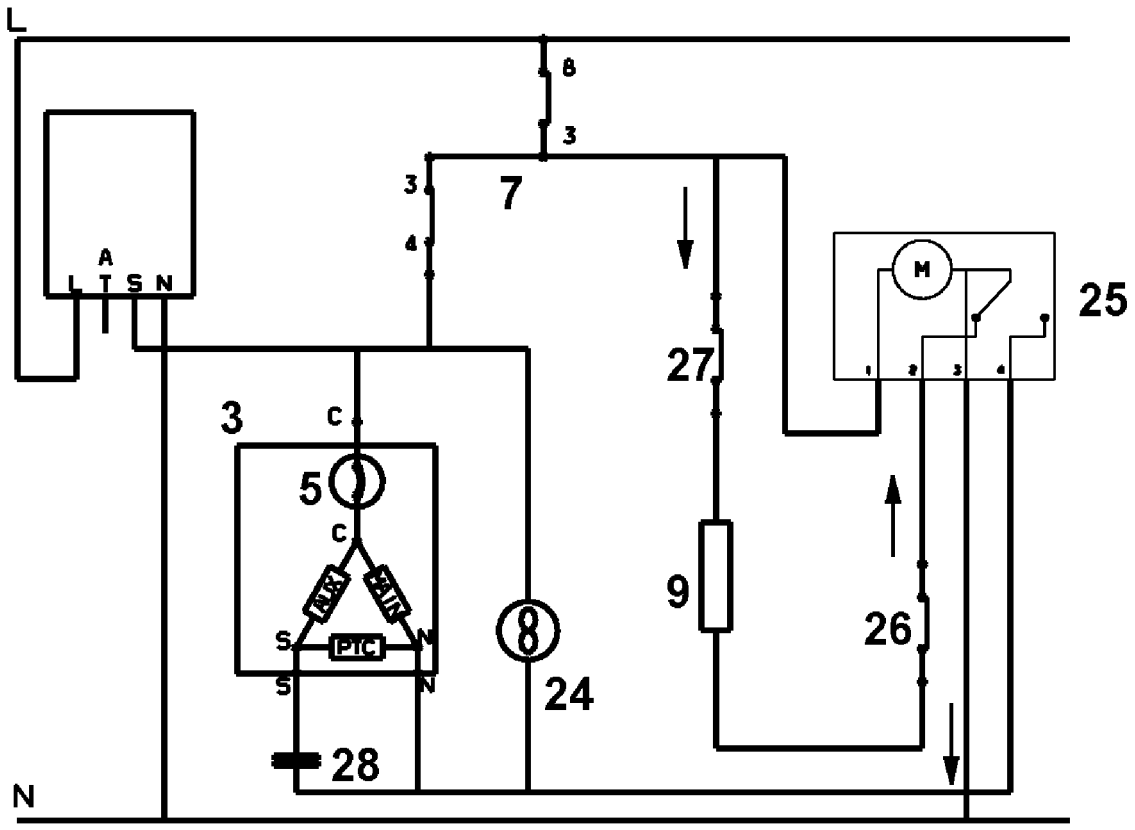
5.2 DEFROSTING

The ice on the battery must be removed regularly, therefore after about 18.5 hours of operation, the timer **(25)** switches from **3-4**contact to **3-2**contact, disconnecting the compressor and the fan and switching on the defrosting heater **(9)**

After about 42 minutes of defrosting, the timer switches to **3-4** contact again, switching the compressor and the fan on and disconnecting the heater.

If the battery temperature reaches +10°C in less than 42 minutes, the heater is switched off by the defrosting cut-out switch **(26).** If, for any reason, it does not switch on and the battery temperature reaches +40°C, the heater will be switched off by the safety thermal switch **(27)**.

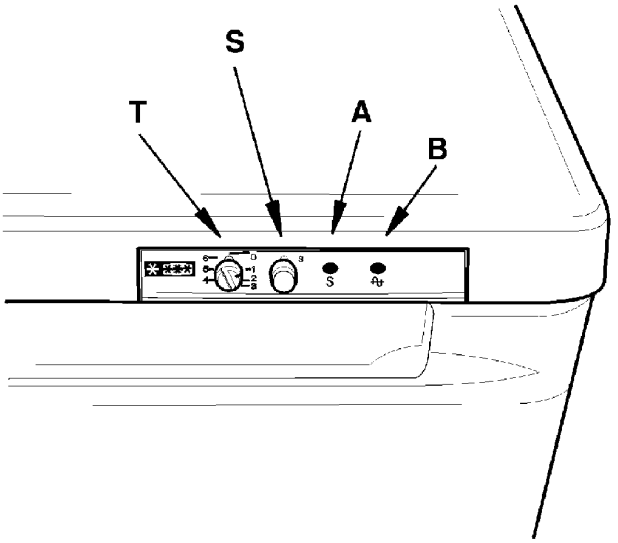
The arrows in the picture show the current path.



6. COMPONENTS

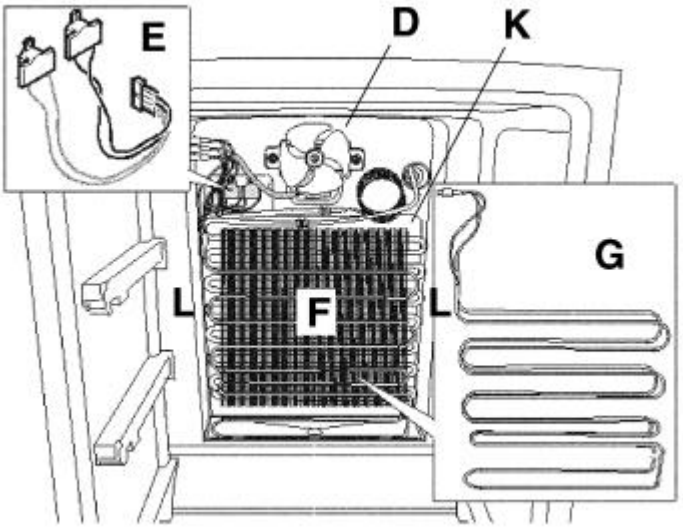
6.1 Contro panel :

- SUPER **A** pilot lamp;
- ON/OFF **B** pilot lamp;
- thermostat knob **T**;
- push-button SUPER **S**
  fixed positions **in the electromechanic version**
  (hidden if OFF, in sight if ON)
  by impulse timed exclusion
  (about 48 hours) **in the electronic version**; in case
  of first ignition or of power failure, SUPER
  sets automatically for about 5 hours;



6.2 Freezer compartment :

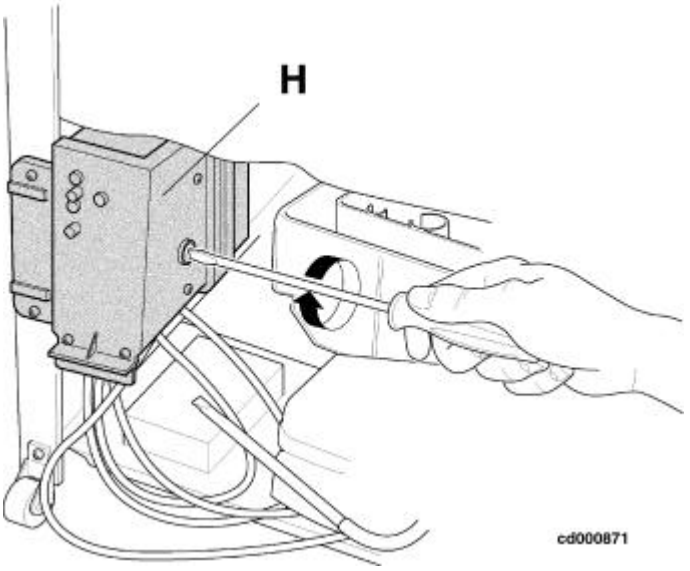
- fan **D**;
- couple of thermal overload cut-outs **E**
- evaporator battery **F**
- defrosting heater **G** (151 W – 381 Ω)
- conveyor **K**
- side hooks **L**

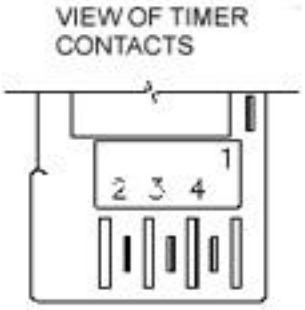


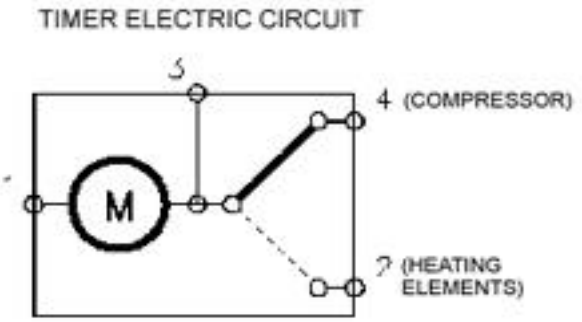
TYPE OF THERMAL OVERLOAD CUT-OUT	OPERATION TEMPERATURE	
	OPENING	CLOSURE
DEFROSTING	+ 10 °C	- 1 °C
SAFETY	+ 40 °C	+ 30 °C

6.3 Compressor compartment:

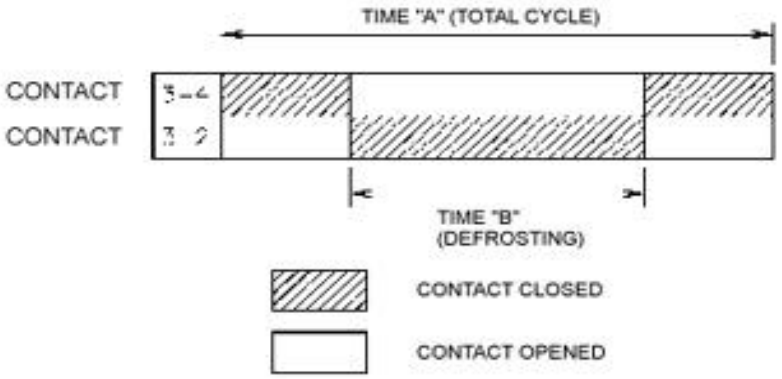
At the back of the appliance there is the timer **H**; by using a screwdriver it is possible to rotate the shaft cam manually, only clockwise, to switch the 3-4 and 3-2 contacts switch.



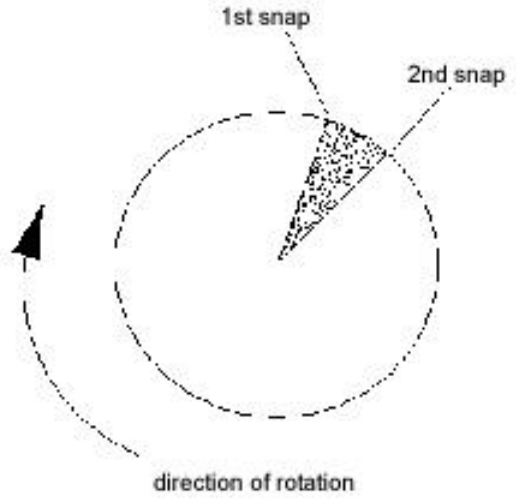




TIME “A”	TIME “B”
19 h 12 ‘	42 ‘



By rotating the timer shaft clockwise with a screwdriver, you can hear two snaps that indicate the contacts closure. As you can see in the picture (the position of the snaps is merely indicative), between the 1st snap and the 2nd snap the run is minimum, between the 2nd and the 1st snap the run is longer:



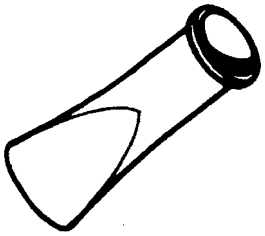
Warning :

- In order to test the appliance during “normal” operation, you need to rotate the timer cam till the 2nd snap so as to close 3-4 contact;

- In order to test the appliance during “defrosting” operation, you need to rotate the timer cam till the 1st snap so as to close 3-2 contact.

Rubber valves

The defrosting water is drained outside by means of a special silicon rubber valve inserted into the conveyor drain. Its structure enables the defrosting water to exit easily, while during the cooling phase, because of the eddy inside the compartment, the valve closes thus avoiding the external humid air to be ducted in.



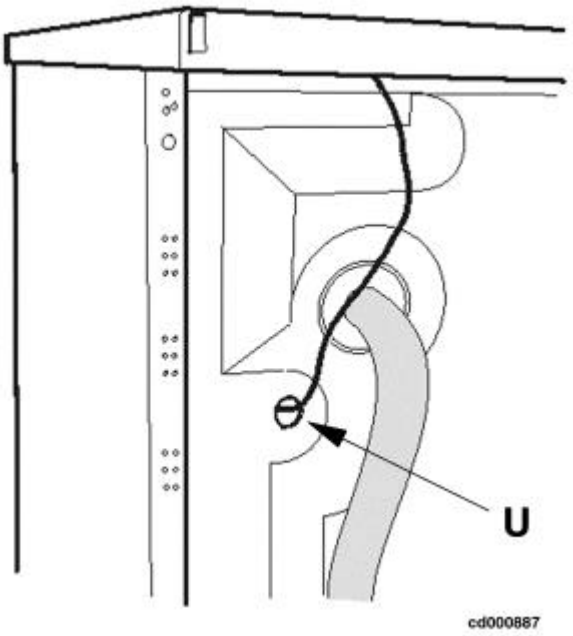
7. ACCESSIBILITY

7.1. ACCESSIBILITY TO CONTROL PANEL

To access the control panel it is necessary to unscrew the two screws that fix the top to the hinges, then push the top forward in order to uncouple the hooks from the mushroom screws.

Inside the top there is the controls support with the thermostat (or the electronic board), the thermostat knob and the SUPER push-button.

The thermostat capillary (or the electronic sensor) enters the compartment by hole **U** .



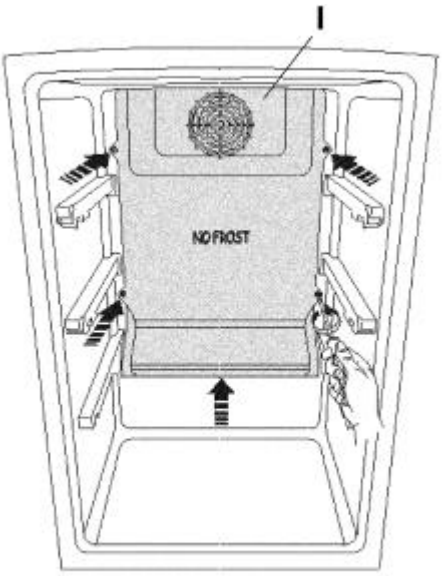
Characteristics of NTC sensor:

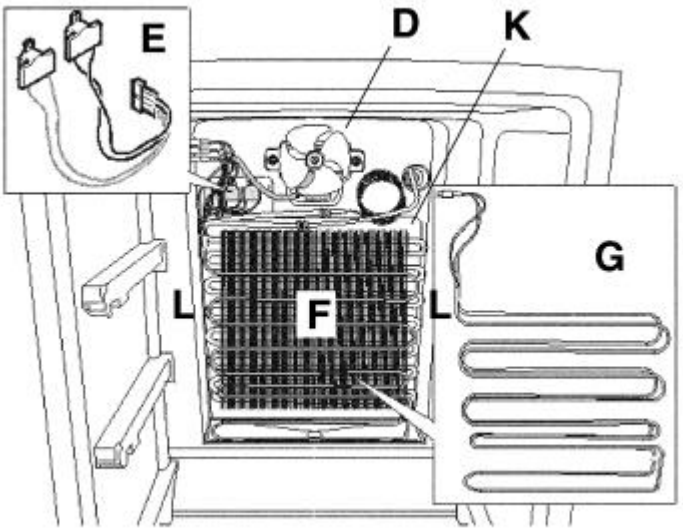
TABELLA DI CONVERSIONE
CONVERSION TABLE

°C	△	OHM
10	±0.6	5348
9	±0.6	5611
8	±0.6	5888
7	±0.6	6182
6	±0.6	6491
5	±0.4	6818
4	±0.4	7164
3	±0.4	7529
2	±0.4	7916
1	±0.4	8325
0	±0.4	8758
-1	±0.4	9216
-2	±0.4	9701
-3	±0.4	10215
-4	±0.4	10759
-5	±0.4	11337
-6	±0.6	11949
-7	±0.6	12598
-8	±0.6	13288
-9	±0.6	14019
-10	±0.6	14795
-11	±0.7	15620
-12	±0.7	16497
-13	±0.7	17429
-14	±0.7	18420
-15	±0.7	19475
-16	±0.8	20596
-17	±0.8	21791
-18	±0.8	23063
-19	±0.8	24418
-20	±0.8	25862
-21	±0.9	27402
-22	±0.9	29045
-23	±0.9	30797
-24	±0.9	32668
-25	±0.9	34666
-26	±1	36800
-27	±1	39082
-28	±1	41521
-29	±1	44131
-30	±1	46921
-31	±1	49910
-32	±1	53111
-33	±1	56541
-34	±1	60218
-35	±1	64161
-36	±1	68393
-37	±1	72932
-38	±1	77808
-39	±1	83046
-40	±1	88577

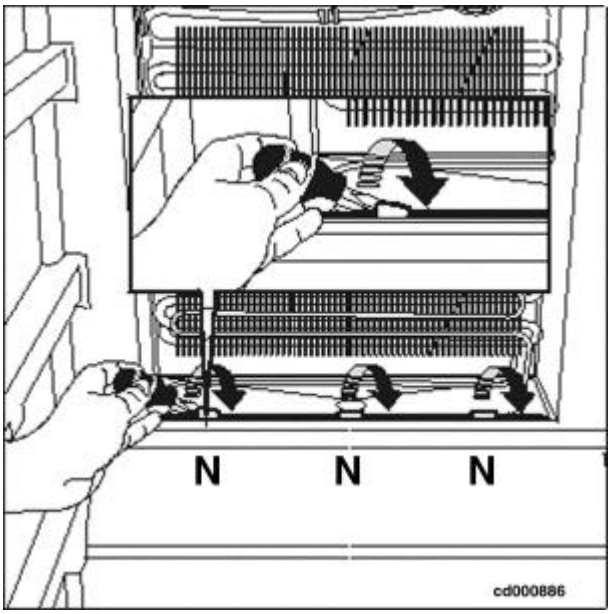
7.2. ACCESSIBILITY TO FREEZER COMPARTMENT

To access the components of the freezer compartment remove the protection **I** by unscrewing the 5 screws.





Evaporator battery
The evaporator battery **F** is hooked to the conveyor **K**
by means of two side clips **L**
and three hooks **N** located at the bottom, removable with a screwdriver.

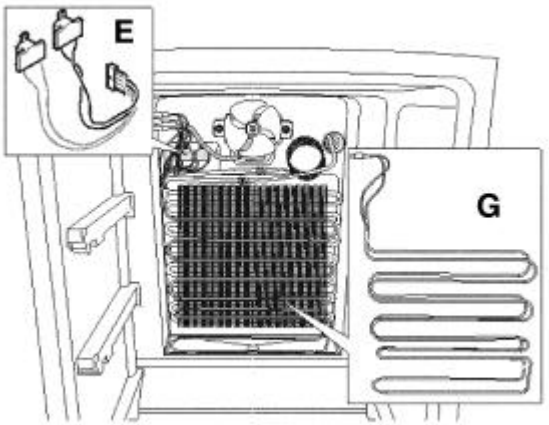


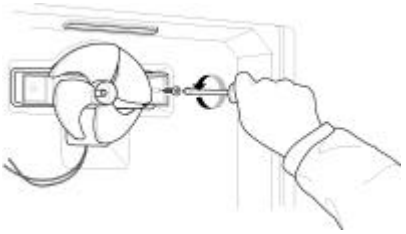
Defrosting heater
The defrosting heater **G** is inserted into the aluminium wings of the battery; to replace it, it is necessary to open the hooks **N** at the bottom of the conveyor with a screwdriver and extract the heater from the battery wings paying attention not to deform them.

Thermal overload cut-outs
The two +10°C e +40°C overload cut-outs are connected together in a single component **E** and are not available as single spare part.
They are fixed to the conveyor with two screws.

The conveyor
The conveyor for the defrosting heater is fitted to the bottom of the compartment with two clips; to remove the conveyor it is necessary to push down the two clips.

The fan
The fan is fixed with two screws.





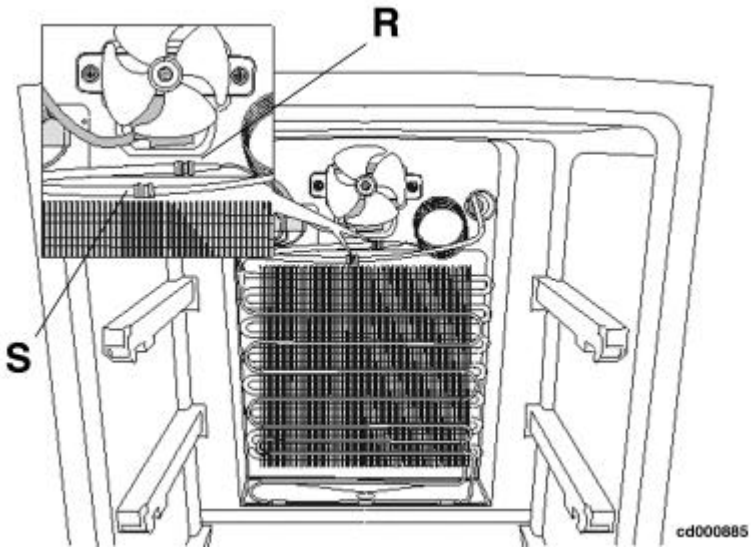
8. TROUBLESHOOTING

WARNING !

Unplug the appliance before operating.

Discharged circuit :

In case of refrigerating gas leakage, the troubleshooting must be carried out not only in the traditional weldings, but also in the junctions with LOKRING ring of the battery-capillary **R** and battery-return hose **S** hoses.



Excessive ice on the battery :

If the rubber valve remains open, the humid air outside the freezer compartment penetrates inside and accumulates too much ice on the battery. The valve remains open if there are foreign bodies or if it looses elasticity, therefore, in the first case the foreign bodies must be removed, while in the latter the rubber valve must be replaced.

No defrosting :

If no defrosting cycle occurs, the possible causes might be:

Sequence n°	POSSIBLE CAUSES	HOW TO CHECK	CORECTIVE ACTION
1	The defrosting heater is interrupted	Disconnect the heater connector and check with the tester the correct heater value to the connector clamps	If the heater value is not about 380 Ω, replace the interrupted heater
2	One or both thermal overload cut-out switches are open	Freeze the battery then unplug the appliance, disconnect the connector of thermal overload cut-outs and check with a tester their electrical continuity to the connector clamps	If the heater value is ∞ Ω (infinite=open circuit), replace the thermal overload cut-outs, while if the heater value is 0 Ω then check sequence n° 3
3	Timer blocked or faulty	Unplug the appliance, position the thermostat knob on ON, then access the timer box and measure the electrical continuity with a tester: a) between clamp 1 of timer and the line clamp of the feeding plug; b) between the clamp 3 of timer and the clamp of the feeding clamp neutral wire	If the heater values of [a) and b)] are 0 Ω then replace the timer

For the electronic version there is no switch before the timer therefore, when the appliance is connected to the supply mains, the timer is always supplied but it does not action anything if the electronic thermostat is OFF.

Faulty sensor :

If the sensor is faulty the electronic board is set so as the appliance operates with some pre-set programme cycles:

30 minutes compressor ON
45 minutes compressor OFF